

Patent Claims

1. A sliding door for motor vehicles, having an outer door skin(3), an inner door skin (4) and a door inside trim (50), which is supported on at least one guide rail provided on a vehicle body and which is movable between an opened position and a closed position along a longitudinal direction (x) of the vehicle, comprising a cable guide assembly (20, 25) for accommodating and guiding electric cables, which connect first electric elements provided in or on the vehicle body to second electric elements provided on the sliding door (1), whereby on moving the sliding door, the cable guide assembly is movable at least in a plane including the longitudinal direction (x) of the vehicle and whereby a guide channel (14, 16-18) for guiding the cable guide assembly (20, 25) is provided on moving the sliding door (1), **characterized in that** guide surfaces (16-18) of the guide channel (14) are formed or integrated at least in sections on the inner door skin (4) and/or on a door module support (10) capable of being connected with the inner door skin (4) and/or on the door inside trim (50).
2. The sliding door according to claim 1, wherein the door module support (10) and/or the door inside trim (50) is or are provided to accommodate further functional elements, especially window lift, door lock or loudspeaker, whereby these functional elements are configured to be pre-assembled and pre-tested.
3. The sliding door according to any of the preceding claims, wherein the guide channel (14) is formed between the door module support (10) and the inner door skin (50) of the sliding door.
4. The sliding door according to claim 1 or 2, wherein the guide channel (14) is formed between the door module support (10) and the door inside trim (50) of the sliding door.
5. The sliding door according to any of the preceding claims, wherein the cable guide assembly comprises a first (20) and a second (25) section, whereby the first section (20) is only movable in the sliding plane including the longitudinal direction (x) of the vehicle on moving the sliding door, and whereby the second section (25) is movable, in particular pivotable, in a direction transverse to the sliding plane on displacing the sliding door into the sliding plane.
6. The sliding door according to the preceding claim, wherein an end (20) of the cable guide assembly connected to an interface element (31) on the door side is assigned

to a top section (17) of the guide channel, and wherein an end (25) of the cable guide assembly (32) connected to an interface element on the vehicle body side is assigned to a bottom section (18) of the guide channel.

7. The sliding door according to the preceding claim, wherein on moving the sliding door (1) a C-shaped turning area (24) of the cable guide assembly (20, 25) passes over a central guide area (16) which is provided between the top section (17) and the bottom section (18) of the guide channel (14).
8. The sliding door according to any of claims 5 to 7, wherein the guide channel (14) is designed as a cavity extending along the longitudinal direction (x) of the vehicle with two side walls parallel to each other, which limit a lateral movement of the first section (20) of the cable guide assembly.
9. The sliding door according to the preceding claim, wherein at least one side wall (14) of the cavity is formed on the door module support (10) or on the inner door skin (4) or on the door inside trim (50).
10. The sliding door according to the preceding claim, wherein the cavity is formed by working an edge area of the door module support (10) or of the inner door skin (4) or of the door inside trim (50).
11. The sliding door according to any of the two preceding claims, wherein the at least one side wall (16) is formed by stamping of the worked edge area of the door module support (10) or of the inner door skin (4) or of the door inside trim (50).
12. The sliding door according to any of claims 8 to 11, wherein a width of the cavity in the vicinity of the side walls (16) corresponds to a transverse dimension of the cable guide assembly (20) in the transverse direction of the vehicle.
13. The sliding door according to any of claims 6 to 12, wherein the first section (20) of the cable guide assembly is guided substantially free from play in both sections (17, 18) of the guide channel.
14. The sliding door according to any of the preceding claims, wherein the guide channel (14) further includes a sliding element guide (47) for guiding a sliding element (43) connected to the cable guide assembly (20, 25).

15. The sliding door according to the preceding claim, wherein the sliding element guide (47) is formed as a longitudinal protrusion on the guide channel (14), which engages in a longitudinal slot (44) of the sliding element (43).
16. The sliding door according to any of the two preceding claims, wherein a pivot bearing (35) is formed on or attached to the sliding element (3), on which pivot bearing a second section (25) of the cable guide assembly is pivotably supported so that the second section (25) executes a pivoting movement around an axis (38) perpendicular to the longitudinal direction (x) of the vehicle when the sliding door (1) is displaced into the sliding plane.
17. The sliding door according to the preceding claim, wherein the pivot bearing (35) is designed to be C-shaped and in one piece with the sliding element (35).
18. The sliding door according to any of the two preceding claims, wherein the pivot bearing (35) and the guide (14, 16-18) are designed such that the second section (25) of the cable guide assembly is not obstructed by the door module support (10) on pivoting.
19. The sliding door according to any of the preceding claims, wherein the cable guide assembly (35) comprises at least one cable drag chain (20; 25) consisting of chain links (21; 26), in which the electric cables are accommodated and guided.
20. A method of assembling a sliding door according to the preamble of claim 1, **characterized in that** the outer door skin (3), the inner door skin (4) and the door inside trim (50) are provided in such a manner that guide surfaces (16-18) of the guide channel (14) are formed or integrated at least in sections on the inner door skin (4) and/or in a door module support (10) capable of being connected with the inner door skin (4) and/or on the door inside trim (50) upon assembly of the sliding door (1).
21. The method according to the preceding claim, wherein the cable guide assembly (20, 25) is provided pre-assembled and is attached to the door module support (10) for accommodating the sliding door's functional units and wherein the door module support (10) is attached together with the functional units and the cable guide assembly (20, 25) to the sliding door in such a manner that the guide channel (14) for guiding the cable guide assembly is formed on moving the sliding door (1).

22. The method according to any of the two preceding claims, wherein the guide channel (14) is formed between the door module support (10) and the inner door skin (4) of the sliding door.
23. The method according to any of claims 20 or 21, wherein the guide channel (14) is formed between the door module support (10) and the door inside trim (50).